

Amendment and Response Under 37 C.F.R. 1.116

Applicant: Josef Böck et al.
Serial No.: 10/521,106
Filed: September 13, 2005
Docket No.: I435.121.101/12307US
Title: BIPOLAR TRANSISTOR

IN THE CLAIMS

Please cancel claims 25-26.

Please add claim 33.

Please amend claims 9, 24 and 27 as follows:

1-8 (Cancelled)

9. (Previously Presented) A bipolar transistor comprising:
an emitter area which can be contacted electrically via an emitter electrode;
a base area which can be contacted electrically via a base electrode;
a collector area which can be contacted electrically via a collector electrode; and
wherein at least one electrode of the emitter electrode, base electrode and collector
electrode is a polysilicon layer, into which doping is inserted and impurity atoms are inserted,
wherein the inserting of the impurity atoms causes a high density of vacancies in the polysilicon
layer, the density in the range of about 10^{19} to 10^{21} cm^{-3} , and wherein the impurity atoms are C, P
or Ar atoms and wherein the combination of the inserted doping and inserted impurity atoms is
such that the electrode resistance is reduced.

10.-11. (Cancelled)

12. (Previously Presented) The transistor of claim 9, comprising wherein the polysilicon
layer is doped with boron atoms.

13. (Previously Presented) The transistor of claim 12, comprising wherein the concentration
of the boron atoms is greater than 5×10^{20} cm^{-3} .

14. (Previously Presented) The transistor of claim 9, comprising wherein the at least one
electrode consists of polycrystalline silicon-germanium.

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15. (Previously Presented) The transistor of claim 9, comprising wherein the at least one electrode is the base electrode.

16. (Previously Presented) The transistor of claim 9, comprising wherein the bipolar transistor is a self-aligned bipolar transistor.

17.-23 (Cancelled)

24. (Previously Presented) A bipolar transistor comprising:
an emitter area which can be contacted electrically via an emitter electrode;
a base area which can be contacted electrically via a base electrode;
a collector area which can be contacted electrically via a collector electrode; and
wherein at least one electrode of the emitter electrode, base electrode and collector electrode is a polysilicon layer doped with boron atoms, into which impurity atoms, which cause a high density of vacancies in the polysilicon layer, are inserted, wherein the impurity atoms are C, P or Ar atoms;
, and wherein the density of the impurity atoms in the polysilicon layer is in the range of about 10^{19} to 10^{21} cm^{-3} ; and
wherein the concentration of the boron atoms is greater than 5×10^{20} cm^{-3} .

25. (Cancelled)

26. (Cancelled)

27. (Previously Presented) The transistor of claim 2624, comprising wherein the at least one electrode consists of polycrystalline silicon-germanium.

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28. (Previously Presented) The transistor of claim 27, comprising wherein the at least one electrode is the base electrode.

29. (Previously Presented) The transistor of claim 28, comprising wherein the bipolar transistor is a self-aligned bipolar transistor.

30.-32 (Cancelled)

33. (New) A bipolar transistor comprising:
an emitter area which can be contacted electrically via an emitter electrode;
a base area which can be contacted electrically via a base electrode;
a collector area which can be contacted electrically via a collector electrode;
wherein a polysilicon layer is used as the base electrode;
wherein the extrinsic base resistance of the base electrode is reduced by inserting impurity C atoms into the polysilicon layer, thereby causes a high density of vacancies in the polysilicon layer; and
wherein doping is inserted in the polysilicon layer.